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ARAŞTIRMA MAKALESİ / RESEARCH ARTICLE

BIBLIOMETRIC ANALYSIS OF FLOW THEORY FROM PAST TO PRESENT WITH VISUAL MAPPING TECHNIQUE: A MARKETING-SIDED APPROACH

GÖRSEL HARİTALAMA TEKNİĞİYLE GEÇMİŞTEN GÜNÜMÜZE AKIŞ TEORİSİNİN BİBLİYOMETRİK ANALİZİ: PAZARLAMA YÖNLÜ BİR YAKLAŞIM

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Abstract

The aim of this study is to present a general literature typology of flow theory where a history of roughly 47 years (1975-present) exists. YÖK (Council of Higher Education) Thesis Center and Google Academic databases were used for this paper and flow and flow experience concepts have been examined through these sources. YÖK Thesis Center is a website within higher education institution in Turkey, where publication of master's and doctoral thesis. A number of studies published in the time period from 1975 to the present had been obtained and these studies were reviewed. Subsequently, frequency analyses were made for the research and the bibliographic mapping of the data was done using VOSviewer software. As a result of the analysis, a bibliography of 110 selected studies is presented. Flow experience, which is mainly subject to physical activities, is evaluated in the areas of technology acceptance and consumer behavior in computer-mediated environments. Flow theory is mostly integrated with the technology acceptance model. Flow theory experience is characterized by the dimensions of concentration, enjoyment, and control, respectively. This research provides clear explanations for bibliographic analysis of studies on flow, models/theories with which flow theory is most integrated, and dimensions of flow experience.

Keywords: Flow Theory, Bibliography, Models/Theories, Dimensions, Marketing

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Öz

Bu çalışmanın amacı, yaklaşık 47 yıllık (1975-günümüz) bir geçmişi olan akış teorisinin genel bir literatür tipolojisini sunmaktır. Bu çalışma için YÖK Tez Merkezi ve Google Akademik veri tabanları kullanılmış ve bu kaynaklar üzerinden akış ve akış deneyimi kavramları incelenmiştir. YÖK Tez Merkezi, Türkiye'de yükseköğretim kurumları bünyesinde yüksek lisans ve doktora tezlerinin yayımlandığı bir web sitesidir. 1975 yılından günümüze kadar geçen zaman diliminde yayımlanmış çok sayıda çalışma elde edilmiş ve bu çalışmalar gözden geçirilmiştir. Daha sonra araştırma için frekans analizleri yapılmış ve VOSviewer yazılımı kullanılarak verilerin bibliyografik haritalaması yapılmıştır. Analiz sonucunda seçilen 110 çalışmanın bibliyografyası sunulmuştur. Esas olarak fiziksel aktivitelere tabi olan akış deneyimi, bilgisayar aracılı ortamlarda teknoloji kabulü ve tüketici davranışlarında değerlendirilmektedir. Diğer taraftan araştırma sonuçlarına göre akış teorisi, teknoloji kabul modeli ile en çok entegre olmaktadır. Dahası, akış deneyimi, sırasıyla konsantrasyon, zevk ve kontrol boyutu ile fazla karakterizedir. Bu araştırma, akış üzerine yapılan çalışmaların bibliyografik analizi, akış teorisinin en çok entegre edildiği modeller/teoriler ve akış deneyiminin boyutları için net açıklamalar sağlamaktadır.

Anahtar Kelimeler: Akış Teorisi, Bibliyografya, Model/Teoriler, Boyutlar**,** Pazarlama

1. Introduction

Seeing the flow experience frequently in different daily activities such as; hobbies, ritual events and artistic performances for writing, reading books, sports, worshiping one's faith, playing games, shopping, watching movies, going to concerts, working, browsing / searching for information online and more, is presently possible. Conversely, flow experience is a subject that has been studied in relative literature for over forty-seven years. In other words, flow experience is a subject that is widely handled by researchers within the framework of new research topics. As a result, flow theory has found practical support in numerous studies that have been carried out. Thus, the flow experience has been proposed by researchers as a useful structure in order to conduct studies. Likewise, the flow experience provides a valuable framework for studying a user's voluntary behaviors.

Flow theory is of great interest to researchers in describing and explaining user/consumer behavior in the marketing discipline as well as in information systems. In this study, a holistic approach has been adopted to understand and explore the dimensions of flow experience for consumers' experiences. Thanks to this study, it will be possible to learn in which dimensions and with which theory/models the flow theory (or experience) is evaluated by researchers in the context of the nature of life, marketing activitiesi social commerce, online services, shopping channels/environments, etc. Through this study, it will be possible to draw some consistent conclusions about the relationship of flow experience with consumer behavior.

The aim of this study is to reveal the bibliography of selected works within the framework of a series of studies published within the time period from 1975 to the present. In order to introduce a general literature typology of flow theory from the last 47 years, this study will examine the theory / models in which flow theory is integrated, and the relevant sub-dimensions characterized by the flow experience.

As a result, a general literature framework of the flow experience, which has been the subject of relevant literature for roughly 47 years (1975-present), will be drawn. There is a research gap in the relevant literature that comprehensively addresses the flow experience in this direction. By filling this gap, researchers will have a clear idea about which dimensions of flow experience would be appropriate to use for future research, as well as learn which models / theories flow theory integrates with.

2. Background of the Research

The theoretical origin of the flow experience is in the published studies of two famous psychologists Abraham Maslow (1968, 1970, 1971), and Mihaly Csikszentmihalyi (1975a, 1975b). Optimal experience, proposed by Abraham Maslow (1968, 1970, 1971), represents a fundamental building block of flow theory. So much so that optimal experience is about a fundamental theory of the dominant motivation theory of the renowned psychologist Abraham Maslow (1971), which is directed towards the formation of the hierarchy of human experience. Initially, the scientific foundations of flow theory were introduced in a qualitative study conducted by Mihaly Csikszentmihalyi (1975a, 1975b) in the context of physical activities in daily life in 1975. Csikszentmihalyi (1975a) used the experience of flow in his work to describe the feelings of dancers or climbers in the midst of an optimum experience. During interviews with many people, Csikszentmihalyi (1975a) discovered a state of mind that he called "flow experience" or "flow state". At the same time, Csikszentmihalyi (1975a, 1975b, 1990) described the experience of flow, a balance between the dimensions characterized by: challenge / difficulties and competence / skill, action and awareness merger, clear goals, focus, control, loss of self-consciousness, time distortion, immediate feedback and autonomy experience. These dimensions have been confirmed by a practical study by Jackson & Marsh (1996).

Flow theory is a theory that finds application in the measurement of the flow experience quality (Csikszentmihalyi & Figurski, 1982; Wong & Csikszentmihalyi, 1991a; Ellis, Voelkl & Morris, 1994; Moneta & Csikszentmihalyi, 1996). In this direction, three, four and eight channel flow models are important models in measuring the quality of the flow experience. The three-channel flow model is the original channel model of the flow experience developed by Csikszentmihalyi (1975a, 1975b). This model considers two premises as competence (skill) and challenge (level of difficulty) for flow situations, and according to this model, flow experience is a mental state that takes place in a balance between competence in actions and challenge (Csikszentmihalyi, 1975a, 1975b; Ellis, Voelkl & Morris, 1994; Novak & Hoffman, 1997; Novak, Hoffman & Yung, 1998; Voelkl & Ellis, 1998; Pilke, 2004; Pearce, Ainley & Howard, 2005; Rha, Williams & Heo, 2005; Engeser & Rheinberg, 2008; Özkara, 2015; Baytar & Yükselen, 2018). In other words, the occurrence of flow state is hidden in the relationship between the challenge of activities and competencies (Voelkl & Ellis, 1998). However, in regards to actions, according to the three-channel flow model, boredom or anxiety occurs when there is no balance between competence and challenge. As a result, according to this model, three

mental states such as flow, anxiety or boredom emerge in connection with the competence and challenge levels regarding actions.

Moreover, the three-channel flow model was further developed and introduced as a four-channel flow model by Csikszentmihalyi & Csikszentmihalyi (1988) and an eight-channel flow model by Massimini & Carli (1988) in the 1980s. Four-channel flow experience model (Csikszentmihalyi & Csikszentmihalyi, 1988; Ellis, Voelkl & Morris, 1994; Novak & Hoffman, 1997; Novak, Hoffman & Yung, 1998; Chen, Wigand & Nilan, 1999; Pearce, Ainley & Howard, 2005; Rha, Williams & Heo, 2005; Engeser & Rheinberg, 2008; Özkara, 2015) takes two premises as competence and challenge for flow situations, but according to this model, flow situation occurs when challenge and competence are balanced above a certain level. In other words, unlike the three-channel model, the flow situation does not occur in equilibrium with low competence and low challenge. According to this model, in regards to actions, four mental states such as flow, boredom, anxiety or apathy emerge in connection with the levels of competence and challenge. On the other hand, according to the eight-channel flow experience model (Ellis, Voelkl & Morris, 1994; Novak & Hoffman, 1997; Pearce, Ainley & Howard, 2005), flow takes place in a balance between mental state of actions, competence and challenge. Unlike the four-channel flow model, according to the eight-channel flow model, eight mental flow states such as control, arousal, relaxation, apathy, anxiety, worry or boredom arise in relation to the levels of competence and the challenge of actions. On the other hand, flow theory emerges as a theory that first finds an area of application on physical activities in daily life within the framework of these flow channel models (Csikszentmihalyi, 1975a, 1975b). Flow theory is based on time passages, occupations, feelings, psychological states (or well-being) and mental processes (Csikszentmihalyi, Larson & Prescott, 1977; Larson & Csikszentmihalyi, 1983; Csikszentmihalyi & Larson, 1987; Massimini & Carli, 1988; Csikszentmihalyi & Lefevre, 1989; Csikszentmihalyi & Nakamura, 1989; Clarke & Haworth, 1994) also has an area of application on the assessment of flow experience in different cultures (Csikszentmihalyi & Csikszentmihalyi, 1988). However, it is possible to use flow theory in the context of daily life activities to explain the relationship between flow and activity performance (Wong & Csikszentmihalyi, 1991b) or also the effects of activity performance on flow (Engeser & Rheinberg, 2008).

However, when the relevant literature is examined, it will be seen that flow theory is mostly discussed by researchers within the framework of the causal flow model approach (Novak, Hoffman & Yung, 1998; Özkara, 2015). The main reason for this is the competence and challenge associated with the flow situation, as well as the availability of new additional structures (Özkara, 2015). According to causal flow models, the balance between competence and challenge is not sufficient for the emergence of a mental state of actions. The reason for this is the flow experience is largely dependent on the balance of challenge and competence (Engeser & Rheinberg, 2008). Therefore, it is necessary to have specific goals regarding actions, to focus attention on work being done, and to have feedback on how right or wrong the job was done during the actions (Özkara, 2015). In this direction, since the balance between challenge and competence was not seen as sufficient for the formation of the flow

situation, applied studies were carried out within the framework of the causal flow model approach, especially as of the 1990s (Ghani, Supnick & Rooney, 1991; Trevino & Webster, 1992; Webster, Trevino & Ryan, 1993). Accordingly, for the first time in the 1990s, using computer-mediated environments, Ghani, Supnick & Rooney (1991) evaluated flow theory in terms of both face-to-face and computer-mediated groups. On the other hand, flow theory was first addressed in 1996 by Hoffman & Novak (1996) in the marketing context to promote hyper computer-mediated media in relation to human to computer interaction. In addition to these two studies, flow theory continues to be widely evaluated in terms of human-computer interaction with many other studies (Webster, Trevino & Ryan, 1993; Ghani & Deshpande, 1994; Ghani, 1995; Novak, Hoffman & Yung, 1998; Novak, Hoffman & Yung, 2000; Finneran & Zhang, 2003; Finneran & Zhang, 2005; Li & Browne, 2006). Flow theory is a theory that finds application in different contexts such as electronic mail and voicemail systems (Trevino & Webster, 1992) or information systems (Rissler, Nadj & Adam, 2017), web or internet environments (Chen, Wigand & Nilan, 1999; Chen, Wigand & Nilan, 2000; Mahnke, Wagner & Benlian, 2012), website quality (Hsu, Chang & Chen, 2012; Obadă, 2014), website atmosphere (Gao & Bai, 2014), concrete design options specific to a website (Mahnke, 2014; Mahnke, Benlian & Hess, 2015), website interactions (Van Noort, Voorveld & Van Reijmersdal, 2012), use of commercial web stores (Koufaris, 2002; Korzaan, 2003; Skadberg & Kimmel, 2004), structure of commercial websites (Nel et al., 1999), online store background colors (Ettis, 2017), social commerce or social shopping websites (Hyun, Thavisay & Lee, 2021; Liu et al., 2016), web-based education (Rha, Williams & Heo, 2005; Shin, 2006), social network site-based brand communities (Kaur, Dhir & Rajala, 2016; Zhao, 2019), use of information, communication or information technology (Agarwal & Karahanna, 2000; Pilke, 2004; Rodriguez-Sanchez et al., 2008; Deng et al., 2010), information technology is sufficient spindle (Sharafi, Hedman & Montgomery, 2006), use of the world-wide-web (Novak & Hoffman, 1997; Moon & Kim, 2001), commercial website shopping (Richard & Chebat, 2016), electronic retailing (Çabuk & Kuş, 2019), online shopping (Guo & Poole, 2009; Hausman & Siekpe, 2009; Hsu, Wu & Chen, 2013; Hsu, 2020; Wu, Chiu & Chen, 2020) or internet shopping (Smith & Sivakumar, 2004), internet marketing (Hoffman & Novak, 2009; Huang, 2006), internet use (Rettie, 2001; Chung & Tan, 2004), online information searches (Mathwick & Rigdon, 2004; Pace, 2004; Özkara, 2015; Ozkara, Ozmen & Kim, 2017), online game playing (Hsu & Lu, 2004), online or electronic learning (Pearce, Ainley & Howard, 2005; Choi, Kim & Kim, 2007; Ho & Kuo, 2010; Lee, 2010; Rodríguez-Ardura & Meseguer-Artola, 2016), online services for hotel (Kim, Yoo & Yang, 2020; Yanık, 2014; Bilgihan et al., 2015), online communication (Chang & Wang, 2008), online user behavior (Mahfouz, Joonas & Opara, 2020; Shin & Kim, 2008), online consumer behaviors (Lee & Chen, 2010), online consumer participation (Lee & Wu, 2017), online product presentation mode (Sharkey, Acton & Conboy, 2012), online financial services (Xin Ding et al., 2010), mobile shopping environments (Chen, Hsu & Lu, 2018), mobile TV service or use (Jung, Perez-Mira & Wiley-Patton, 2009; Zhou, 2013), mobile social network services (Zhou, Li & Liu, 2010), mobile internet usage and continuity (Zhou, 2011; Alwahaishi & Snášel, 2013), mobile instant messaging (Zhou & Lu, 2011) or just instant messaging (Lu, Zhou & Wang, 2009), use of social media (Pelet, Ettis & Cowart, 2017), use of digital content or

digital technology content (Kim, Oh & Shin, 2010; Calvo-Porral, Faíña-Medín & Nieto-Mengotti, 2017), use of electronic or smart devices (Baytar & Yükselen, 2018; Park, 2020; Yang & Shih, 2020), use of 5G technology (Akbari et al., 2020), adopting or using media devices (Yang & Lee, 2018), using virtual world (Ahmad & Abdulkarim, 2019; An, Choi, & Lee, 2021; Barhorst et al., 2021), and watching live broadcast events (Chen & Lin, 2018).

As a result, the aim of this research is to draw a literature typology for the time period from 1975 up to the present, when the scientific foundations of flow theory were laid. In this direction, a series of studies conducted within a method are reviewed. The method part of this research is given below.

3. Research Method

This study aims to present a general literature typology of flow theory, which has a history of approximately 47 years (1975-2021). For the aim of this study, work in relevant literature has been reviewed within a method. The following criteria were taken into account in the data collection process. First, this study is based on two online databases, Google Academic and YÖK (Council of Higher Education) Thesis Center. The reason for choosing YÖK Thesis database is to reach the thesis studies selected for this study. Second, in the context of the purpose of the research, the data collection content is from textbooks, journal articles, conference papers and doctoral dissertations. Moreover, third, while scanning the databases in the context of the purpose of the study, the keywords flow, flow experience, flow theory are used. However, this study focuses on the published pioneering research on flow experience in the relevant years. In order to form a basis for the purpose of the study, reference investigations that make great contributions to the development of flow theory in its historical process are taken into consideration more within the framework of relevant theories. In this direction, a series of studies published in the time period from 1975 to the 2021 t have been selected for the purpose of this paper. The selected studies include all research published in the time period from 1975 to the present to investigate the bibliography of the work, the models / theories that integrate flow theory, and the sub-dimensions of the flow experience. Finally, each study selected for this study has been reviewed one by one and relevant notes have been taken. At the same time, the grades (numbers) received are reviewed and revised. Notes relate to the author(s), publication date or year, topic, purpose, theoretical foundations, study model (if any), methodology, and findings of the studies reviewed. For these collected notes the relevant tables are created by performing a frequency analysis. Moreover, the notes obtained for each study were manually coded into the EndNote file extension of the relevant study. EndNote files were run with the VOSviewer software and visual bibliometric mappings of the tables were made. In this context, the research findings are given below.

4. Results

The studies selected for this study and related findings are summarized in Table 1.

Table 1. Studies Selected for This Study and Their Number

Year	Selected Studies	N
1975	Csikszentmihalyi (1975a); Csikszentmihalyi (1975b)	2
1977	Csikszentmihalyi, Larson & Prescott (1977)	1
1982	Csikszentmihalyi & Figurski (1982)	1
1983	Larson & Csikszentmihalyi (1983)	1
1987	Csikszentmihalyi & Larson (1987)	1
1988	Csikszentmihalyi & Csikszentmihalyi (1988); Massimini & Carli (1988)	2
1989	Csikszentmihalyi & Lefevre (1989); Csikszentmihalyi & Nakamura (1989)	2
1990	Csikszentmihalyi (1990)	1
1991	Ghani, Supnick & Rooney (1991); Wong & Csikszentmihalyi (1991a); Wong & Csikszentmihalyi (1991b)	3
1992	Trevino & Webster (1992)	1
1993	Webster, Trevino & Ryan (1993)	1
1994	Ellis, Voelkl & Morris (1994); Ghani & Deshpande (1994); Clarke & Haworth (1994)	3
1995	Ghani (1995)	1
1996	Moneta & Csikszentmihalyi (1996); Hoffman & Novak (1996); Jackson & Marsh (1996)	3
1997	Novak & Hoffman (1997)	1
1998	Novak, Hoffman & Yung (1998); Voelkl & Ellis (1998)	2
1999	Chen, Wigand & Nilan (1999); Nel et al. (1999)	2
2000	Agarwal & Karahanna (2000); Novak, Hoffman & Yung (2000); Chen, Wigand & Nilan, (2000)	3
2001	Moon & Kim (2001); Rettie (2001)	2
2002	Koufaris (2002)	1
2003	Finneran & Zhang (2003); Korzaan (2003)	2
2004	Chung & Tan (2004); Mathwick & Rigdon (2004); Hsu & Lu (2004); Pace (2004); Pilke (2004); Skadberg & Kimmel (2004); Smith & Sivakumar (2004)	7
2005	Finneran & Zhang (2005); Pearce, Ainley & Howard (2005); Rha, Williams & Heo (2005)	3
2006	Huang (2006); Li & Browne (2006); Sharafi, Hedman & Montgomery (2006); Shin (2006)	4
2007	Choi, Kim & Kim (2007)	1
2008	Chang & Wang (2008); Engeser & Rheinberg (2008); Rodriguez-Sanchez et al. (2008); Shin & Kim (2008)	4
2009	Guo & Poole (2009); Hoffman & Novak (2009); Jung, Perez-Mira & Wiley-Patton (2009); Hausman & Siekpe (2009); Lu, Zhou & Wang (2009)	5
2010	Ho & Kuo (2010); Kim, Oh & Shin (2010); Deng et al. (2010); Lee (2010); Lee & Chen (2010); Xin Ding et al. (2010); Zhou, Li & Liu (2010)	7
2011	Zhou (2011); Zhou & Lu (2011)	2
2012	Hsu, Chang, & Chen (2012); Mahnke, Wagner & Benlian (2012); Sharkey, Acton & Conboy (2012); Van Noort, Voorveld & Van Reijmersdal (2012)	4
2013	Alwahaishi & Snášel (2013); Hsu, Wu & Chen (2013); Zhou (2013)	3
2014	Gao & Bai (2014); Mahnke (2014); Obadă (2014); Yanık (2014)	4
2015	Bilgihan et al. (2015); Mahnke, Benlian & Hess (2015); Özkara (2015)	3
2016	Liu et al. (2016); Richard & Chebat (2016); Kaur, Dhir & Rajala (2016); Rodríguez-Ardura & Meseguer-Artola (2016)	4
2017	Calvo-Porral, Faíña-Medín & Nieto-Mengotti (2017); Ettis (2017); Lee & Wu (2017); Ozkara, Ozmen & Kim (2017); Pelet, Ettis & Cowart (2017); Rissler, Nadj & Adam (2017)	6
2018	Baytar & Yükselen (2018); Chen & Lin (2018); Chen, Hsu & Lu (2018); Yang & Lee (2018)	4
2019	Ahmad & Abdulkarim (2019); Çabuk & Kuş (2019); Zhao (2019)	3

2020	Akbari et al. (2020); Hsu (2020); Kim, Yoo & Yang (2020); Mahfouz, Joonas & Opara (2020); Park (2020); Wu, Chiu & Chen (2020); Yang & Shih (2020)	7
2021	An, Choi, & Lee (2021); Barhorst et al. (2021); Hyun, Thavisay & Lee (2021)	3

Time Period	f	%
1975-1979	3	2.72
1980-1989	7	6.36
1990-1999	18	16.36
2000-2009	32	29.10
2010-2019	40	36.36
2020-Present	10	9.10
1975-Present	110	100

As can be seen in Table 1, a total of 110 reference studies published in the time period since 1975 have been selected for this study. According to Table 1, there is a noticeable increase in the number of reference works, which were published in the time period from 1975 to the present.

The bibliometric mapping of the studies selected according to Table 1 is shown in Figure 1.

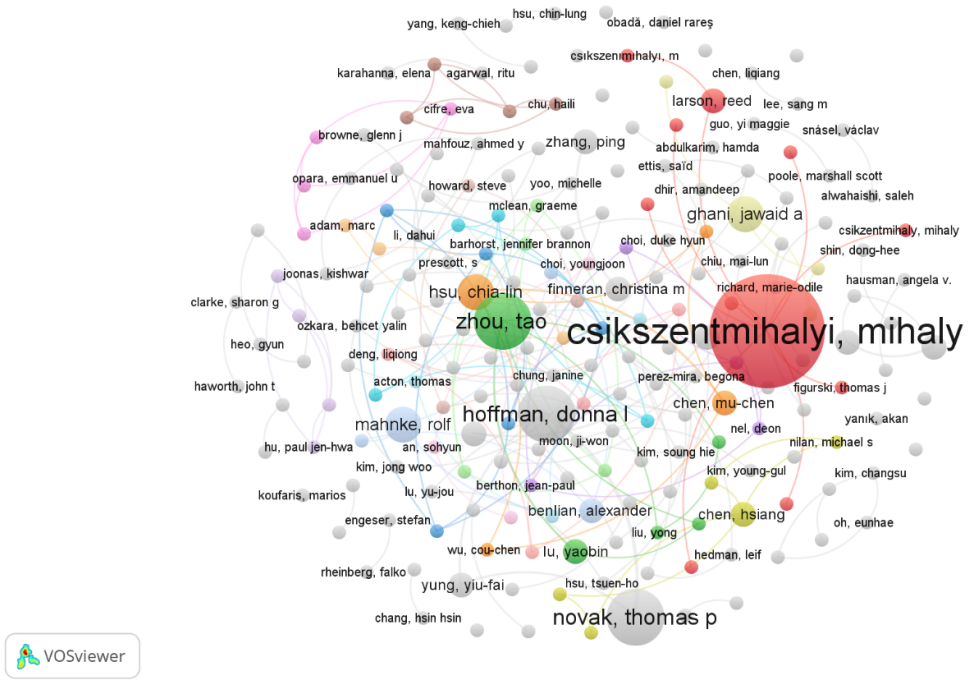

Figure 1. Most Co-Authorship for Selected Studies

As shown in Figure 1, Csikszentmihalyi, Hoffman, Novak and Zhou stand out as the most authoritative authors among the selected studies. In other words, they are the authors with the most

co-authorship in the selected studies. On the other hand, there is a connection between Hoffman and Novak, who have both co-authored some studies from selected studies.

Findings about the bibliography of 110 selected studies are summarized in Table 2.

Table 2. Bibliography of Studies Selected for This Study

Bibliography of Selected Studies		Time Period													
		1975-1979		1980-1989		1990-1999		2000-2009		2010-2019		2020-Present		1975-Present	
		N_1=3		N_2=7		N_3=18		N_4=32		N_5=40		N_6=10		N_T=110	
		f	%	f	%	f	%	f	%	f	%	f	%	f	%
Number of Authors	One author	2	66.66			2	11.11	7	21.88	9	22.5	2	20.0	22	20.0
	Two authors			7	100.0	10	55.55	16	50.0	13	32.5	1	10.0	47	42.73
	Three or more authors	1	33.33			6	33.33	9	28.13	18	45.0	7	70.0	41	37.27
Study Discipline	Psychology	3	100.0	7	100.0	8	44.44	1	3.13					19	17.27
	Marketing					4	22.22	8	25.0	19	47.5	6	60.0	37	33.63
	Information technology					6	33.33	23	71.88	21	52.5	4	40.0	54	49.10
Study Attribute	Book	1	33.33	1	14.29	2	11.11							4	3.64
	Article	2	66.66	6	85.71	16	88.88	32	100.0	37	92.5	10	100.0	103	93.64
	Conference paper									1	2.5			1	1.0
	Doctoral dissertation									2	5.0			2	1.82
Study Type	Quantitative					5	27.77	23	71.88	35	87.5	10	100.0	73	66.36
	Qualitative	3	100.0	7	100.0	10	55.55	8	25.0	3	7.5			31	28.18
	Mixed					3	16.66	1	3.13	2	5.0			6	5.46
Study Scope	Daily life	3	100.0	7	100.0	8	44.44	1	3.13					19	17.27
	Consumer behavior					4	22.22	8	25.0	19	47.5	6	60.0	37	33.63
	Technology acceptance					6	33.33	23	71.88	21	52.5	4	40.0	54	49.10
Analysis Unit	Student	1	33.33	4	57.14	10	55.55	18	56.25	12	30.0	3	30.0	48	43.64
	Student and other					1	5.55	3	9.38	7	17.5	3	30.0	14	12.72
	Other (social media user, smartphone user, web user, employee, athlete, player, composer etc.)	2	66.66	3	42.86	5	27.77	7	21.88	20	50.0	4	40.0	31	28.18
	Source (book, article etc.)					2	11.11	4	12.5	1	2.5			7	6.36
Sample Size	A thousand and below	3	100.0	7	100.0	14	77.77	27	84.28	36	90.0	9	90.0	96	87.28
	Over a thousand					2	11.11	1	3.13	3	7.5	1	10.0	7	6.36
	Not quantitative					2	11.11	4	12.5	1	2.5			7	6.36
Data Collection Method	Survey					5	27.77	23	71.88	36	90.0	10	100.0	74	67.27
	Focus group							1	3.13					1	0.91
	İnterview	2	66.66			1	5.55	3	9.38	2	5.0			8	7.27
	Experience sampling	1	33.33	7	100.0	7	38.88							15	13.64
	Literature review					2	11.11	4	12.5	1	2.5			7	6.36
	Mixed (experiment, questionnaire etc.)					3	16.66	1	3.13	1	2.5			5	4.55

Data Analysis Method	Regression					7	38.88	7	21.88	7	17.5			21	19.09
	Anova/Manova			2	28.57	2	11.11							4	3.64
	SEM					6	33.33	15	46.88	29	72.5	9	90.0	59	53.64
	Other analysis	3	100.0	3	42.86	1	5.55	3	9.38	1	2.5	1	10.0	12	10.9
	Not quantitative			2	28.57	2	11.11	7	21.88	3	7.5			14	12.73

As can be seen in Table 2, a chronological analysis of the findings in the time period from 1975 to the present is given. Among the selected 110 studies, there are more studies with two authors (42.73%), information technology discipline (49.10%), articles (93.64%) and quantitative (66.36%) studies on flow experience. At the same time, it is seen that among the 110 studies chosen, technology acceptance is the most used (49.10%) as the study scope, while it is seen that students are the most chosen as the analysis unit (43.64%) and the sample size in most of the studies is less than one thousand or one thousand (87.28%). The survey method (67.27%) was used for data collection and the structural equation method (53.64%) was used the most for the analysis of the data.

The bibliometric mapping created for Table 2 is shown in Figure 2.

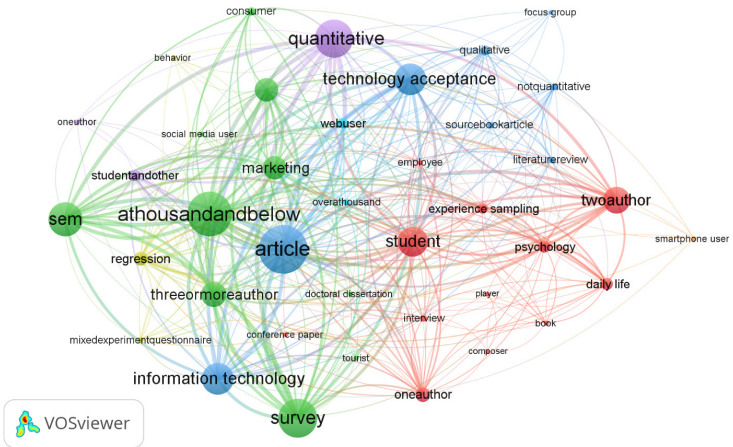

Figure 2. Most Co-Occurrences for the Bibliography of Selected Studies

As shown in Figure 2, the number of co-authorships in selected studies is two authors. In addition, in selected studies, co-study discipline is information technology, co-study attribute is article, co-study type is quantitative, co-study scope is technology acceptance, co-analysis sample unit is students, co-sample size is less than a thousand, co-data collection method is survey, and the co-data analysis method is Structural Equation Modeling (SEM).

There is evidence that flow theory is integrated with a number of models / theories in these selected studies. Table 3 summarizes this evidence.

Table 3. Findings Regarding the Models / Theories Integrating Flow Theory

Models/Theories Integrating with Flow Experience	Model/Theory Origin	Time Period													
		1975-1979		1980-1989		1990-1999		2000-2009		2010-2019		2020-Present		1975-Present	
		N_1=3		N_2=7		N_3=18		N_4=32		N_5=40		N_6=10		N_T=110	
		f	%	f	%	f	%	f	%	f	%	f	%	f	%
Technology Acceptance Model (TAM)	(Davis, 1985)							5	15.63	3	7.5	6	60.0	14	12.73
Theory of Planned Behavior (TPB)	(Ajzen, 1985, 1987, 1991)							1	3.13	3	7.5	1	10.0	5	4.55
Extended Technology Acceptance Models	(Taylor and Todd, 1995; Venkatesh and Davis, 2000; Venkatesh and Morris, 2000)							4	12.5					4	3.64
The Stimulus–Organism–Response Model (S-O-R)	(Mehrabian and Russell, 1974)									3	7.5	1	10.0	4	3.64
Information System (IS) Success Model	(DeLone and McLean, 1992)									3	7.5			3	2.73
The Unified Theory of Acceptance and Use of Technology (UTAUT)	(Venkatesh et al., 2003)									2	5.0	1	10.0	3	2.73
Theory of Reasoned Action (TRA)	(Fishbein and Ajzen, 1975)							1	3.13	1	2.5	1	10.0	3	2.73
Risk Theory (RT)	(Bauer, 1960)							1	3.13	1	2.5	1	10.0	3	2.73
The Expectation-Confirmation Model (ECM)	(Oliver, 1980; Bhattacherjee, 2001)									1	2.5	2	20.0	3	2.73
A Person–Artefact–Task (PAT) Model	(Finneran and Zhang, 2003)							2	6.25					2	1.82
Ground Theory	(Mahnke, 2014)									2	5.0			2	1.82
Motivation Theory (MT)	(Davis et al., 1992; Andrews, 1986)							1	3.13	1	2.5			2	1.82
Uses & Gratifications Theory (U&G)	The origin of this theory goes back to the early 1940s (Sampat and Krishnamoorthy, 2016).							1	3.13			1	10.0	2	1.82
Elaboration Likelihood Model (ELM)	Cacioppo and Petty (1984)											2	20.0	2	1.82
Innovation Diffusion Theory (IDT)	Rogers (2003)											1	10.0	1	0.91
The Engagement Mode (EM) Model	(Heidegger, 1927/1996)							1	3.13					1	0.91
The Causality Orientation Theory	(Deci and Ryan, 1985a, 1985b, 1987)							1	3.13					1	0.91

Para-Social İnteraction Theory (PSI)	Horton and Wohl (1956)											1	10.0	1	0.91
Cue Utilization Theory (CU)	Easterbrook (1959)											1	10.0	1	0.91
Dual-Process Theory (DP)	Cacioppo and Petty (1984)											1	10.0	1	0.91
Embodied Social Presence Theory (ESP)	(Mennecke et al., 2011)									1	2.5			1	0.91
Jungian Personality Theory	(Myers, 1962)									1	2.5			1	0.91
Regulatory Fit Theory	(Aaker and Lee, 2006)									1	2.5			1	0.91
E-Learning Success Model	(According to the relevant literature, this model has evolved with the rise of the internet since the early 1990s)							1	3.13					1	0.91
Personal Computing Model (PC) or Model of Personal Computer Utilization (PCU)	(Thompson et al., 1991, 1994)					1								1	0.91
Information Search Theory	(Case, 2002)									1				1	0.91

As can be seen in Table 3, it is seen that flow theory is integrated with a series of models / theories in a chronological analysis of the findings in the time period from 1975 to the present. Among the selected 110 studies, the relationship between flow theory and technology acceptance model (12.73%) was examined by researchers the most. As a result, there is more evidence that flow theory is related to the technology acceptance model. Thus, this evidence suggests that flow theory is most integrated with the technology acceptance model.

The bibliometric mapping created for Table 3 is shown in Figure 3.

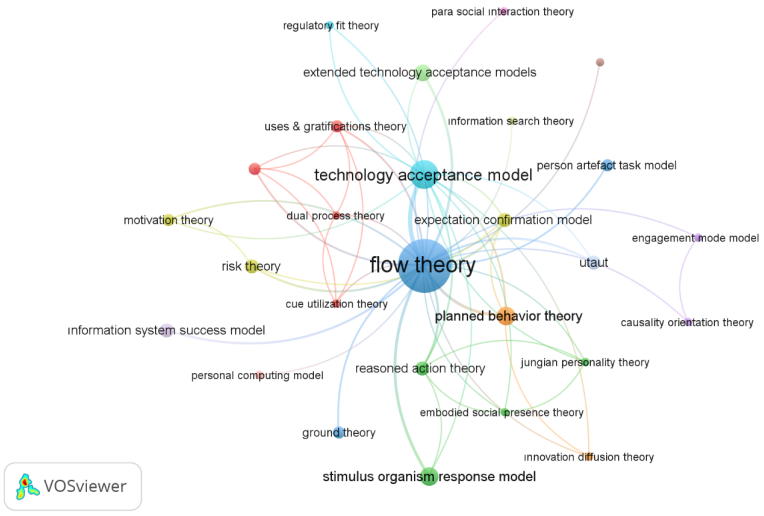

Figure 3. Most Co-Occurrences for Used Theory / Models in Selected Studies

As shown in Figure 3, flow theory is the most commonly used co-occurrence in selected studies. However, among the selected studies, flow theory and technology acceptance model are the two most co-occurrence used together. Because flow theory has the most connection with the technology acceptance model, even though it has connections with all theories/models.

There is evidence that studies published in the time period since 1975 and the flow experience have been characterized by the researchers in terms of the relevant sub-dimensions. Table 4 summarizes the findings that characterize the flow experience.

Table 4: Flow Experience Dimensions Inferred in Selected Studies

Flow Experience Dimensions	Time Period													
	1975-1979		1980-1989		1990-1999		2000-2009		2010-2019		2020-Present		1975-Present	
	N_1=3		N_2=7		N_3=18		N_4=32		N_5=40		N_6=10		N_t=110	
	f	%	f	%	f	%	f	%	f	%	f	%	f	%
Concentration (focused attention, attention focus, focused immersion)	2	66.66	4	57.14	14	77.77	16	50.0	20	50.0	4	40.0	60	54.55
Enjoyment (autotelic experience)	2	66.66	1	14.29	7	38.88	15	46.88	18	45.0	4	40.0	47	42.73
Control	3	100.0	4	57.14	13	72.22	14		10	25.0	1	10.0	45	40.91
Flow Experience			1	14.29	4	22.22	15	46.88	17	42.5	6	60.0	43	39.1
Time Distortion (temporal dissociation, temporal distortion, time transformation, distorted sense of time)	1	33.33	1	14.29	3	16.66	10	31.25	8	20.0	2	20.0	25	22.73
Challenge	1	33.33			7	38.88	9	28.13	4	10.0	2	20.0	23	20.91

Skill	1	33.33			6	33.33	7	21.88	2	5.0	2	20.0	18	16.36
Balance of Skill and Challenge	1	33.33	1	14.29	6	33.33	5	15.63	1	2.5			14	12.73
Telepresence	1	33.33			3	16.66	7	21.88	2	5.0	1	10.0	14	12.73
Clear Goals (goal clarity)	1	33.33	1	14.29	2	11.11	4	12.5	5	12.5			13	11.82
Loss of Self-Consciousness (unself-consciousness)	1	33.33	2	28.57	4	22.22	5	15.63	1	2.5			13	11.82
Feedback	2	66.66	1	14.29	3	16.66	3	9.38	2	5.0			12	10.91
Curiosity					3	16.66	3	9.38	6				12	10.91
Interaction (social, product, website)					5	27.77	2	6.25	4	10.0	1	10.0	12	10.91
Mergence of Activity and Awareness	2	66.66	1	14.29	2	11.11	3	9.38	2	5.0			10	9.09
Involvement					5	27.77	5	15.63					10	9.09
Exploratory Behavior					4	22.22	5	15.63	1	2.5			10	9.09
Intrinsic İnterest					4	22.22	4	12.5	1	2.5			9	8.18
Playfulness					2	11.11	5	15.63	1	2.5			8	7.27
Cognitive Absorption							3	9.38	5	12.5			8	7.27
Arousal			1	14.29	4	22.22	2	6.25					7	6.36
Increased Learning					2	11.11	4	12.5			1	10.0	7	6.36
Motivation			2	28.57	1	5.55	1	3.13	2	5.0			6	5.45
Positive Affect					3	16.66			2	5.0			5	4.55
Anxiety			1	14.29	2	11.11	2	6.25					5	4.55
Apathy			1	14.29	3	16.66	1	3.13					5	4.55
Boredom			1	14.29	2	11.11	2	6.25					5	4.55
Relaxation			2	28.57	3	16.66							5	4.55
Worry			1	14.29	4	22.22							5	4.55
Mood			3	42.86			1	3.13					4	3.64
Experience (website, continuity, kind, individual)			1	14.29			3	9.38					4	3.64
Satisfaction			2	28.57	1	5.55	1	3.13					4	3.64
Engagement							2	6.25	1	2.5			3	2.73
Ease of Use					1	5.55	2	6.25					3	2.73
Happiness					3	16.66							3	2.73
Fluency									3	7.5			3	2.73
Wish Doing the Activity			1	14.29	2	11.11							3	2.73
Information (organization, quality, quantity)									2	5.0	1	10.0	3	2.73
Play					1	5.55	1	3.13					2	1.82
Creativity			1	14.29	1	5.55							2	1.82
Self-Affirmation					2	11.11							2	1.82
Internet Self-Efficacy							1	3.13	1	2.5			2	1.82
Time Spent on a Brand Website							1	3.13	1	2.5			2	1.82
Perceived Behavioral Control					1	5.55	1	3.13					2	1.82
Need for Cognition							1	3.13	1	2.5			2	1.82
Potency			1	14.29									1	0.91
Self-Awareness			1	14.29									1	0.91
Aversive Experience			1	14.29									1	0.91
Perceived Voluntariness			1	14.29									1	0.91
Sense of Obligation			1	14.29									1	0.91
Solitude			1	14.29									1	0.91

Bulimia			1	14.29									1	0.91
Ease of Concentration			1	14.29									1	0.91
Time Speed			1	14.29									1	0.91
Affect			1	14.29									1	0.91
Ashamed-Proud			1	14.29									1	0.91
Alert					1	5.55							1	0.91
Feeling Good About Oneself					1	5.55							1	0.91
Cognitive Spontaneity					1	5.55							1	0.91
Work Orientation					1	5.55							1	0.91
Time Budget					1	5.55							1	0.91
Optimum Stimulation Level					1	5.55							1	0.91
Escape							1	3.13					1	0.91
Perceived Risk							1	3.13					1	0.91
Perceived Importance							1	3.13					1	0.91
Speed							1	3.13					1	0.91
Enjoying/Acceptance							1	3.13					1	0.91
Efficiency/Productivity							1	3.13					1	0.91
Ambition/Curiosity							1	3.13					1	0.91
Frustration/Anxiety							1	3.13					1	0.91
Avoidance/Hesitation							1	3.13					1	0.91
Relevance							1	3.13					1	0.91
Search Mechanism (value-added)							1	3.13					1	0.91
Flow Distance							1	3.13					1	0.91
Attractiveness							1	3.13					1	0.91
Intensity							1	3.13					1	0.91
Duration							1	3.13					1	0.91
Individual Differences							1	3.13					1	0.91
Content									1	2.5			1	0.91
Novelty											1	10.0	1	0.91
Vividness											1	10.0	1	0.91

As can be seen in Table 4, it is seen that the flow theory is characterized by a series of dimensions in a chronological analysis of the findings in the time period from 1975 to the present. Concentration (54.55%), pleasure / entertainment (42.73%) and control (40.91%) were the first three dimensions that were mostly evaluated among the dimensions in which the flow experience was characterized by researchers. However, it was observed that flow experience (39.1%) was most evaluated by the researchers as a dimension, while distortion of time (22.73%), challenge (20.91%) and competence (16.36%) were the other three dimensions that were evaluated the most.

The bibliometric mapping created for Table 4 is shown in Figure 4.

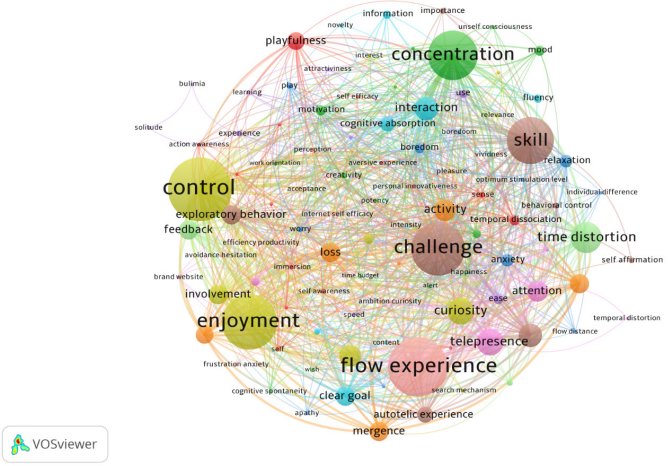

Figure 4. Most Used Flow Experience Co-Dimensions in Selected Studies

As shown in Figure 4, other most co-subordinate dimensions of flow experience beyond flow experience in selected studies are concentration, enjoyment, control, challenge, and time distortion. Control and enjoyment are more closely linked, while challenge and skill are more closely linked.

5. Discussion

Flow theory was first put forward by Csikszentmihalyi in the 1970s in relation to daily life activity issues. However, this theory has been focusing on technology acceptance and consumer behavior since the 1990s. Flow theory has found an area of application for technology acceptance in the early 1990s and marketing research in the mid-1990s. In this context, flow theory can be integrated with many other theories / models, although it is mostly integrated with the technology acceptance model.

Although the theory of flow is a well-proven theory that has been practically proven, it is still a theory that has not completed its development. Even though it is the subject of many studies, the experience of flow is experiencing an identity crisis. There is no scientific consensus among researchers about the dimensions of the flow experience. Researchers consider the dimensions of flow experience proposed by Csikszentmihalyi as being inconsistent with their studies. Moreover, the experience of flow can be the subject of further research on additional dimensions, different from the dimensions proposed by Csikszentmihalyi.

6. Conclusion and Recommendations

The aim of this study is to present a literature typology of flow experience. Through this study, a literature typology of the last 47 years of flow experience is introduced under the constraint of 110 basic studies published in the time period from 1975 to the present-day (2021). In this direction, since it is possible to define the characteristics of studies related to bibliometric studies, the relationships between them and systematize their contents, this current bibliometric study should be expected to form the basis of many studies (Cruz-Cárdenas et al., 2021).

It was seen that the 110 studies selected for this study and analyzed for content had similar characteristics in terms of the number of authors and methodological methods, as well as the study discipline, attribute, type, and scope. The characteristics of 110 studies are generally as follows: In general, these studies with two or more authors are quantitative articles in the discipline of technology or marketing, and therefore these studies have often addressed the issue of technology acceptance and consumer behavior. In general, the sample units of the studies are students or mixed, and the survey technique is used to obtain the data in the studies and the sample sizes are less than a thousand. Finally, structural equation modeling is generally used in the analysis of the data obtained in the studies.

According to the results of the study, flow theory has made important progress since the 1970s. Flow theory has been the subject of many studies since the last 47 years (1975-2021). As can be seen in these studies, flow theory is a proven and solid theory that finds application within the framework of physical activities in daily life, technology acceptance and marketing research. In this context, it is possible to consider flow theory as in the past in the context of daily life experience, acceptance of technology, internet and internet information searches, social media use, and new study topics for consumer behavior research. According to the results of the study, flow theory is the subject of relevant research by researchers within the framework of many models/theories. In particular, the technology acceptance model of flow theory is evaluated within the framework of expanded technology acceptance models and planned behavior theory. According to the relevant dimensions, it is possible to state that the flow experience is more integrated with the technology acceptance and planned behavior components, respectively. It is possible to conduct more research on flow theory in the context of further studies and other models/theories. According to the study result, it is possible to characterize the flow experience with many dimensions. Concentration, enjoyment/pleasure/entertainment, control, flow experience, distortion of time, challenge/difficulty, skill/competence, telepresence and clear goals are the first nine dimensions that are taken into consideration by researchers, respectively. Researchers will be able to make clear explanations about the dimensions of the flow experience that contribute positively to consumer behavior in connection with marketing strategies, especially by applying the flow experience to additional online environments.

Flow experience can be an important construct in explaining consumer-computer behavior for the development of marketing strategies in hypermedia computer-mediated environments. As the

flow experience can influence consumer behavioral attitudes, behavioral intentions, and behaviors, it is likely that the flow experience will become an important issue to be conceptualized and measured in the context of marketing activities. Since the concept of flow may have an important relationship with information technologies, marketing activities and consumer behavior, flow experience dimensions for online shopping such as challenges, competencies, sense of control, enjoyment, telepresence, concentration, disruption of time and clear goals, can be an important indicator of customers' intention to continue shopping online. Since it is inevitable for the customer to engage in experiential behaviors during the online shopping process, conveniences should be provided and obstacles should be removed in order for the customer to obtain an optimal flow experience. At this point, the customer should be given the feeling that you are in control, the customer's attention should be drawn to the product/brand and shopping, time reminders such as clock and calendar should be eliminated, and conveniences that will make shopping fun should be provided. When these are done for the online shopping process, it seems possible to make online shopping fun and maintain a positive relationship with customers.

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